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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,255	12/27/2004	Takchiko Kikuchi	043075	2976
38834	7590	10/10/2007		
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP			EXAMINER	
1250 CONNECTICUT AVENUE, NW			YEE, DEBORAH	
SUITE 700				
WASHINGTON, DC 20036			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			10/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/519,255

Applicant(s)

KIKUCHI ET AL.

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. The proposed amendment to the specific limiting of "deforming a Fe-Mn-Si based shape memory alloy containing Nb and C without substantial NbC precipitation" clearly raises a new matter issue since no clear descriptive support exists for this limitation in the original disclosure. Moreover, the amendment is not inherent base on claim 1 reciting the step of "subjecting the deformed alloy to aging heating treatment to precipitate NbC carbides". The original recitation merely states aging heat treatment is performed to precipitate NbC, which does not indicate or suggest NbC precipitation is not substantially present during deformation prior to aging.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 to 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto et al (US Patent 5, 198,041) for the reasons set forth in the previous office action dated May 8, 2007.

***Response to Arguments***

6. Applicant's arguments filed July 31, 2007 have been fully considered but they are not persuasive.

7. It was submitted that Takemoto discloses processing a stainless steel to an article by subjecting a steel melt to casting into an ingot, forging, hot rolling, annealing, cold rolling and annealing. Thus according to Takemoto, the material is annealed after the hot rolling. If the material contained Nb and C, the annealing would cause NbC to precipitate. Therefore, in Takemoto, the material cold rolled is not "a Fe-Mn-Si-based shape memory alloy containing Nb and C without substantial NbC precipitation" as recited by claim 1. It is examiner's position that this is merely applicants' statement without any convincing evidence (comparative test data). Moreover, the purpose for the prior art annealing is to relieve stress after mechanically working and not to create NbC

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precipitation. Although annealing creates some NbC, it is uncertain whether a **substantial** amount of NbC would occur. Moreover, it should be noted that applicants' newly submitted limitation "deforming a Fe-Mn-Si-based shape memory alloy containing Nb and C without substantial NbC precipitation" is new matter and would not be a patentable consideration.

8. Applicants stated that none of the prior art examples in table 1 meet the atomic ratio  $Nb/C \geq 1$  as recited by claim 1. It is the examiner's position that A15 has an atomic ratio  $Nb/C = 4.44$ . Although its C content is 0.009% and slightly outside the C range of 0.01 to 0.2% recited by claim 1, such would not be a patentable difference since prior art teaches a broad overlapping C range of up to 0.10% C, and applicants have not demonstrated (e.g. comparative test data) that the claimed C range of 0.01 to 0.2% is somehow critical and productive of new and unexpected results.

9. Moreover, prior art A11 contain C and Nb amounts within applicant's claimed wt% ranges with an Nb/C atomic ratio of 0.94, which closely approximates applicants' lower limit range of 1.0. Since applicants have not demonstrated criticality of the Nb/C atomic ratio  $\geq 1$  to be critical (e.g. by comparative test data), then it would seem that a composition with an atomic ratio of 1 vs. a composition with slightly less (say 0.94) would depict a mere difference in the proportion of elements without any attendant unexpected results which would not patentably distinguish claims over prior art.

**Conclusion**

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00am-2: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/  
Primary Examiner  
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